

The opinion in support of the decision being entered today  
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* ALLAN SVENDSEN, SOREN FLENSTED LASSEN,  
DIRK KOSTREWA, LUIS PASAMONTES, MARTIN LEHMANN,  
ANDREA TOMSCHY, ADOLPHUS VAN LOON, KURT VOGEL,  
and MARKUS WYSS

---

Appeal 2007-3377  
Application 10/734,510  
Technology Center 1600

---

Decided: August 23, 2007

---

Before DONALD E. ADAMS, TONI R. SCHEINER, and LORA M.  
GREEN, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claim 121. The Examiner has indicated that the only remaining claims, claims 105-120 and 122-135, are allowable (Answer 2). We have jurisdiction under 35 U.S.C. § 6(b).

## INTRODUCTION

Claim 121 is directed to a method of producing a modified phytase.

Claims 105 and 121 are reproduced below:

105. A method of producing a modified phytase, comprising introducing a mutation in an amino acid sequence of a phytase, wherein the modified phytase has phytase activity and the mutation is at one or more positions selected from the group consisting of 71; 72; 73; 74; 75; 76; 77; 78; 81; 82; 84; 116; 117; 119; and 120;

wherein each position corresponds to the position of the amino acid sequence of the mature *P. lycii* phytase (SEQ ID NO: 7).

121. The method of claim 105, wherein the mutation comprises a substitution selected from the group consisting of:

75W,F; 78D,S; 81A,G,Q,E; 82T; 84I,Y,Q,V; 116S; 119E; and 120L.

The Examiner relies on the following prior art references to show unpatentability:

Lassen

US 6,060,298

May 9, 2000<sup>1</sup>

The rejections as presented by the Examiner are as follows:

1. Claim 121 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.
2. Claim 121 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Lassen.

We reverse.

---

<sup>1</sup> Provisional application No. 60/046,081, filed May 9, 1997.

## DISCUSSION

### Claim Interpretation:

Claim 121 is drawn to a method of producing a modified phytase having phytase activity. The claimed method comprising the single step of introducing a mutation into an amino acid sequence of a phytase. More specifically, claim 121 requires that the mutation comprises a substitution selected from the group consisting of: 75W,F; 78D,S; 81A,G,Q,E; 82T; 84I,Y,Q,V; 116S; 119E; and 120L, wherein each position corresponds to the position of the amino acid sequence of the mature *P. lycii* phytase (SEQ ID NO: 7). While the numbering system for each amino acid corresponds to the amino acid sequence of mature *P. lycii* phytase (SEQ ID NO: 7), the method of claim 121 does not require that one start with a phytase having SEQ ID NO: 7. As Appellants' Specification discloses "[a]n amendment [(mutation)] is said to have occurred in a given position if the model<sup>[2]</sup> amino acid of the model position and the variant amino acid of the variant position are different. Preferred amendments [(mutations)] of these positions manifest themselves as amino acid substitutions, deletions or additions." (Specification 9: 29-31).

The Examiner is correct in that the result of the claimed method may be the production of a modified phytase that has the same sequence as a naturally occurring phytase (e.g., a phytase having SEQ ID NO: 7) (Answer 9). The claim, however, is not drawn to a product, e.g. a phytase. Instead, the claimed invention is a method and requires the exercise of at least one manipulative step - a substitution selected from the group consisting of:

---

<sup>2</sup> The model is the parent phytase, from which the phytase variant is derived (Specification 5: 25-26).

75W,F; 78D,S; 81A,G,Q,E; 82T; 84I,Y,Q,V; 116S; 119E; and 120L.

Therefore, contrary to the Examiner's assertion<sup>3</sup>, while claim 121 may result in the production of a naturally occurring phytase, claim 121 cannot be interpreted to exclude the required manipulative step.

Definiteness:

According to the Examiner, the phytase having SEQ ID NO: 7 has, *inter alia*, a tryptophan at position 75 (Answer 4-5). Therefore, if one used the phytase having SEQ ID NO: 7 in the method of claim 121 to produce a modified phytase having a tryptophan at position 75, the resulting phytase would be the same as the starting phytase (Answer 5). Therefore, the Examiner finds that the claim is "confusing and indefinite, as the claim is no longer 'a method of producing a *modified* phytase'" (*id.*). We disagree.

As discussed above, claim 121 is drawn to a method and requires the performance of at least one manipulative step – an amino acid substitution at a defined position – to produce a modified phytase. Appellants' Specification defines a modified phytase as one which differs from the parent phytase in at least the amino acid that is substituted (Specification 9: 29-31). Therefore, as Appellants explain, "a modified phytase has a different amino acid sequence relative to the parent phytase from which it is derived" (Reply Br. 4). We agree.

---

<sup>3</sup> See Answer 9 ("The claimed method of claim 121, reverts back to 'a method of making the *unmodified* phytase or wild-type phytase (at least with respect to the sequence of SEQ ID NO: 7),' and is therefore *not* a method of making a modified phytase as no amino acid is altered or substituted with a different amino acid at these positions . . .").

Claims are in compliance with 35 U.S.C. § 112, second paragraph, if “the claims, read in light of the specification, reasonably apprise those skilled in the art and are as precise as the subject matter permits.”

*Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1385, 231 USPQ 81, 94-95 (Fed. Cir. 1987). For the forgoing reason, we find that Appellants’ claim is not indefinite. Accordingly, we reverse the rejection of claim 121 under 35 U.S.C. § 112, second paragraph.

Anticipation:

The Examiner finds that “Appellants’ SEQ ID NO: 7 . . . is 100% identical to the sequence of SEQ ID NO: 2 taught by Lassen . . .” (Answer 5). As discussed above, the Examiner finds that SEQ ID NO: 7 has a tryptophan at amino acid position 75 (Answer 6). Therefore, since Lassen’s phytase having SEQ ID NO: 2 is identical to the phytase having SEQ ID NO: 7, the Examiner reasons that there is no difference “between the claimed method of modified phytase and that of a method of making the wild-type phytase, as shown in . . . Lassen . . .” (Answer 6). The problem with the Examiner’s analysis is that the Examiner has focused attention on the product produced by the claimed method, instead of the method set forth in claim 121.

The Examiner failed to identify, and we do not find, a teaching in Lassen of a method of producing a modified phytase by introducing a substitution selected from the group consisting of: 75W,F; 78D,S; 81A,G,Q,E; 82T; 84I,Y,Q,V; 116S; 119E; and 120L. As Appellants point out, Lassen does not disclose such a method (Br. 8).

“Under 35 U.S.C. § 102, every limitation of a claim must identically appear in a single prior art reference for it to anticipate the claim.” *Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997). “Every element of the claimed invention must be literally present, arranged as in the claim.” *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Having failed to identify a teaching of the claimed method in Lassen, the Examiner failed to establish a prima facie case of anticipation.

Therefore, we reverse the rejection of claim 121 under 35 U.S.C. § 102(e) as being anticipated by Lassen.

#### CONCLUSION

In summary, we reverse the rejections of record.

#### REVERSED

dm

NOVOZYMES NORTH AMERICA, INC.  
500 FIFTH AVENUE  
SUITE 1600  
NEW YORK NY 10110